THE AIR LINE PILOT

VOL. 20 — No. 8 66 SEPTEMBER, 1951

These experts in air navigation and transport studied the traffic pattern over Washington National Airport and adjacent areas which have campaigned for anti-noise control. This committee which took off and landed from all approaches to the airport, consisted of, left to right, Captain J. N. Van Patten, Jr., Council 11, Capital Airlines; Lieutenant Colonel Leeman Hipson, USAF; Colonel Robert E. Mills, USAF; Frank Sanchez, CAA; Larry Cates, ALPA; Frank Stanne, CAA; W. B. Sprague, CAA; Carol May, Washington National Airport; Dessel G. Erickson, CAB Pilot; M. P. Hanscom, CAB First Officer; F. E. Parker, Civil Air Attache—Australian Embassy; G. J. Flassman, Executive Assistant to Arlington County Public Utilities Commission.

Penalty Threat Impedes Air Safety

The air line piloting profession, already one of the most difficult and intricate, was recently encumbered with a new hazard as a result of what appears to be a political imbroglio along the Potomac. The new hazard takes the form of criminal sanctions for any pilot violating the newest addition in the maze of pilot regulations.

In Alexandria, Va., on the outskirts of the Washington National Airport, the council, on September 11, approved an ordinance which imposes a fine of $300 or a 90-day jail sentence on any pilot flying over the town at less than 1,000 feet.

This statute, which embodies the Civil Aeronautics Administration regulations, was opposed by ALPA, the CAA, and the Air Transport Association.

This ordinance, which penalizes only the pilot, who is guided by the controller in the tower and by his own judgment from the standpoint of safety standards, is an abridgement of Federal power in interstate transportation under which all scheduled carriers are regulated.

Frederick B. Lee, deputy CAA administrator, pointed out that the ordinance in many respects either duplicates or conflicts with the existing Federal aerial traffic laws.

Lee, citing a provision of the ordinance that a pilot must fly over the city in a straight line, said at times this would be unsafe, impossible, and in violation of CAA orders.

Despite the fact that a committee comprised of Navy, U. S. Air Force, Civic and pilot rep-

(Turn to Page 2)

"SCHEDULE WITH SAFETY"

PUBLISHED BY THE AIR LINE PILOTS ASSOCIATION, INTERNATIONAL, 3145 WEST 63rd STREET, CHICAGO, ILLINOIS

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Vol. 20 No. 8 — 66 — September, 1951

Published Monthly by The Air Line Pilots Association, International, Affiliated with A. F. of L.

Editorial Offices: 3145 W. 63rd St., Chicago, Ill. Telephone GRovehill 6-2200

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Entered as Second Class Matter March 11, 1933, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

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JAY M. SHRECK, *Editor*

Annual Subscription, $2.50

Penalty Threat Makes Pilot a Scapegoat

(Continued from Page 1)

resentatives had been appointed and was studying the traffic problem at the National Airport and had made recommendations, Marshall J. Beverly of the Alexandria city council persisted in putting the regulatory ordinance on the town's books.

This committee, which had met with civic organizations, governmental experts and the city council, made eight recommendations for the traffic pattern (anti-noise) in and out of the National Airport. After test flights over the area, flights in which Beverly did not participate, the following initial recommendations were made:

1) It is recommended that the present standard rectangular pattern configuration and the minimum pattern altitudes be retained in the interest of safety of the occupants of aircraft as well as persons and property on the ground.

2) It is recommended that the anti-noise features of the present patterns be continued, as compliance with them does not jeopardize safety. These features are: the 1200 feet minimum pattern altitude and climb to and descent from the minimum pattern altitude over the Potomac River whenever possible.

3) It is recommended that the practice of short right turns after take-off on runway 18 during clear weather conditions be eliminated except for reasons of safety. It is recognized that for traffic control reasons the short right turn procedure will have to be utilized during marginal weather conditions when instrument approaches from the south are being conducted or when otherwise necessary in the interest of safety.

4) It is recommended that climbing right turns north of the Masonic Temple below 1200 feet after take-off from runway 21 be eliminated. Thus, aircraft will be required to continue their climb until reaching an altitude of 1200 feet before commencing a turn, except in an emergency.

5) Wherever pertinent and possible the phrase "traffic pattern" should be clarified as a "general configuration of airport traffic flow" so as to eliminate any misconception of the intent of traffic pattern diagrams.

6) It is recommended that a group representative of the aeronautical agencies in the Washington area be made available to meet with interested civic groups in the Washington area to discuss noise abatement efforts that have been made in connection with the local problems.

In view of the national scope of the aircraft noise problem, it is recommended that more emphasis be given to an educational approach wherever aircraft noise problems are experienced. Specifically, it is recommended that a handbook be prepared, containing the basic principles and limitations involved in noise abatement measures. Such a pamphlet would be available for distribution to individuals or groups especially concerned with noise nuisance problems. It is further recommended that there be a continuation of efforts by the local representatives of aeronautical agencies to meet with civic groups in discussing their local noise problems.

7) It is recommended that aeronautical agencies emphasize the magnitude of the aircraft noise problem to their pilots and encourage judicious use of "noise abatement" pilot techniques. Although some of the aeronautical agencies have been stressing such measures, all agencies should provide for periodic reminders to their pilots at opportune and regular times, such as at the time of the six months instrument check.

8) There is only one possible permanent and complete solution to the noise nuisance problem in the Washington area or in any other terminal area with residential and business sections located within a 10-mile radius of the airport. That solution is the complete or nearly complete suppression of the noise at its source in the aircraft. It is recommended that the government agencies concerned with this problem accelerate their efforts in fostering continued research and that the manufacturing industry be acquainted with the proportion of the aircraft noise problem as it affects people on the ground and encouraged to take remedial steps in noise abatement.

Probe Asked

Mayors from Elizabeth, Newark, and towns nearby the Newark Airport have asked that the United States Senators from their state investigate the general health hazards attributable to the airport's operation.

The mayors met in Elizabeth on September 21.

Active in this meeting was City Commissioner Meyer C. Ellenstein who attacked the Port Authorities construction of the new administration building which he said would cost about $6,000,000 and was being rushed to block any move at the airport relocation.

The program was adopted despite the report to the conference by Austin J. Tobin, Executive Director of the Port Authority that he was ready to spend between $125,000,000 and $150,000,000 in the next 20 months on new runways in an effort to reduce airplane noise.

Pilots Cautious

Because of the political maneuvering involved in the anti-noise traffic pattern debate in New Jersey, ALPA, through its pilot representatives, Robert L. Tuxbury, UAL Council 52, and A. F. (Red) Foster, TWA Council 2, has adopted a "watchful waiting" policy to protect its air safety standards at the Newark Airport.

It is felt by those neutral in the anti-noise program that the political pressure has endeavored to create fear in the residents adjacent to the Newark field.

It is said that Newark is seeking to regain the airport property from the Port of New York Authority's domain so that it may construct on these acres tax-paying property.

Out of this tangled mess it appears now that a court case will arise.

ALPA Asks Pilot-CAA Radar Confabs

Sayen Appoints New Committee To Study Project

Though radar air traffic control has been discussed in generalities during the last few years, and though little of a sound nature has been contributed to its standardization, it has become evident that consideration of the subject on a national level is imperative.

Discussing the radar problem, ALPA's President, Clarence N. Sayen, said: "There is a strong feeling that proper use of radar can increase both the efficiency and safety of air traffic control, but we are convinced that overselling or careless inattention to important operational details or lack of agreement on standardized methods and procedures will destroy the potential advantages of this new tool of control."

ALPA has asked the Administrator of Civil Aeronautics to meet with pilot representatives in an effort to reach a mutual understanding on these questions:

When and under what conditions will radar separation be accepted in lieu of standard ANC separation?

What constitutes satisfactory identification of radar?

The use of radar information as a gestapo?

"And, perhaps, most important of all," said President Sayen, "we need a clean-cut agreement preserving the pilots' individual right to refuse radar control."

The CAA statement concerning their proposed operational procedures for radar control of traffic in the Washington area is quoted as follows:

"This proposed radar traffic control system is presented as a program for orderly transition from present methods of traffic control to a system of radar control for the Washington area.

"The expression 'Terminal Area' as used herein includes the maneuvering airspace above and surrounding all of the airports in a single metropolitan district. Terminal area considerations are intended to include the needs of private and itinerant flyers as well as military and commercial operators. Radar surveillance will permit radar control of air traffic operating to and from Anacostia Naval Air Station, Andrews Air Force Base, Bolling Air Force Base and Washington National Airport. Friendship Airport, Baltimore Harbor Airport and the proposed Washington supplemental airport are within present radar coverage and can be included at such time as it becomes necessary to do so.

"In order to begin radar control, it will be necessary to maintain the present Washington Center operation intact. As radar control develops and all required flight control information can be posted or displayed adjacent to the radar operating positions, it will gradually become possible to combine the functions of the present flight progress board positions with the corresponding radar operating position.

"Although certain duplication is indicated in this plan, it is felt that such duplication during the change-over period is fully justified in the interest of safety. It should be understood that this condition will only exist until the radar operating positions are so equipped that should a radar failure occur, all traffic in the area can be controlled in accordance with ANC standards solely through the use of the information displayed or posted and the communications network available."

INSPECTS RADAR **Peter Caporale (left), chief of the Establishment Engineering Division of the CAA, inspects the new airport surveillance radar being built by the General Electric Company. The company is building 27 of these systems which, it is said, will permit traffic controllers to see the exact locations of all planes within a 30 to 60 mile radius. Looking on are T. I. Paganelli (right), G-E section engineer, and R. A. Mushrush, G-E project engineer. The system is being installed at the Newark Airport. (An appraisal of radar traffic control begins in this issue.)**

VISITORS **Representatives of the International Transport Workers Federation drop in for a glad hand at ALPA and ALSSA Headquarters en route to the American Federation of Labor convention in San Francisco. Left to right: O. Becu of London, general secretary of ITF, and Willie Dorchain, who is in charge of the American office of the organization in New York. ALPA is an affiliate of ITF.**

The following pilots have been assigned to the ALPA Radar Control committee to work with the CAA:

Captain Walter Jensen, Chairman, AA Council 93, Washington. Chairman and Co-ordinator of the radar control group.

Captain Charles E. Beatley, Master Chairman, Capital.

Captain James LaVake, Chairman, Regional Airspace Subcommittee, New York area. Air Safety Chairman, EAL Council 51, New York.

Captain R. L. Tuxbury, Air Safety Chairman, UAL Council 52, New York. Alternate Regional Airspace Subcommittee Chairman, New York.

An exhaustive report on radar traffic control has been prepared under the direction of S. P. (Sam) Saint, inactive on the ALPA roster but formerly of AA Council 93 and now Director of the ANTC Division of the Air Transport Association. Because of space limitations, only Part I-A is being published in this issue, but the section title, "Immediate Advantages Outweigh Present Weaknesses," will give the pilots a basis for their constructive criticism. The report reads:

"We are frank to say it is our purpose to sell you a sympathetic approach to radar traffic control. Radar is the first element ever introduced in air traffic control that has flexibility enough to cope with the sudden irregularities so common in air transportation. Radar simplifies control in the same sense that

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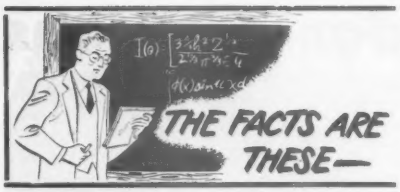
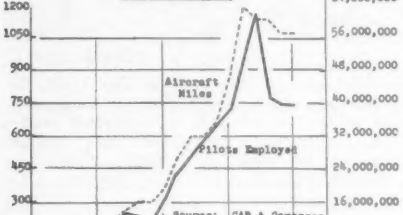


Productivity and Pilot Employment

By RONALD L. OAKMAN

Statistical-Research Department

In the recent American Airlines Emergency Board hearings conducted in New York, Solomon Fabricant testified for a full day on the relationship between productivity and wages. He filled 120 pages of the transcript and used such technical terms as "scatter diagrams" and "the coefficient of correlation" in an attempt to prove to the Board that productivity for the economy as a whole increased annually between 1.6 per cent and 2.2 per

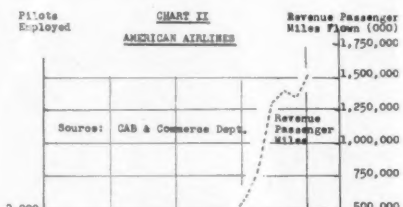


cent and that the relationship between the increase in productivity and the increase in wages was so small that it has to be considered "spurious."

This coefficient of correlation referred to by Dr. Fabricant who, at the time of his testimony, was an employee of American Airlines management, is a measurement devised by statisticians portending to illustrate the amount of relationship obtaining between two sets of variables. It infers a casual relationship and is sometimes valuable in making predictions. For example, merchants have found that the sale of umbrellas is closely related to the amount of rainy weather experienced and they can, if the weather is known in advance, capitalize on this. Another close relationship is found historically between the price of corn and pork. Hogs eat corn; when corn is high, pork is high, and vice versa —as simple as that.

What Mr. Fabricant was trying to say in everyday English, was that he felt that there was no relationship between increased productivity and increased earnings and furthermore, there should not be a relationship. He claimed to have only slight knowledge of the now famous General Motors contract which definitely ties wages to productivity and he went further in his testimony in an attempt to prove that increased productivity sometimes even depresses wages. He touched only lightly on the effect of productivity increases on employment by giving an example of the water industry in London during the nineteenth century. Prior to 1830 all the water consumed in the city of London was carried by hand and retailed by the thimbleful. At that time water pipes were installed and a number of people lost employment. It was estimated, he said, that to haul all of the water needed in London by means of human back, would require more workers than there were men, women and children in the entire city.

Dr. Fabricant's anology does not hold water. Should we be requested to com-



pare piloting a 50-ton airplane, containing over 600 instruments all in need of human interpretation, at a speed in excess of 300 mph comparable to the turning of a water valve? Maybe the air lines will figure a way some day of "piping" passengers across the country sans pilots.

Chart I, herewith, portrays graphically the relationship existing since 1934 between the number of aircraft miles flown (productivity) on American Airlines and the number of pilots employed. It will be noted that these two variables were closely related until 1946 at which time the increased speed of more modern equipment began to take its toll of pilot jobs.

Chart II portrays graphically the relationship between pilot employment and revenue passenger miles flown on American Airlines since 1934 and here the divergence is far more dramatic. Since 1946 it seems the more revenue passenger miles produced the less pilots required.

It can be seen on Chart I that aircraft miles flown on American have actually dropped since 1945, and since this smaller number of aircraft miles are flown at increased speeds, it is logical to deduce that less pilot hours were consumed and as we can see, less pilots were employed. Due to this increased speed and the increased seating capacity (weight) revenue passenger miles flown have increased tremendously, and though normally the trend in employment should again turn upward and indeed has since the Korea splurge, technology in the air line industry is changing so fast and so many radical changes are still ahead that predictions of permanently increased pilot employment because of increased business finds little encouragement from the facts.

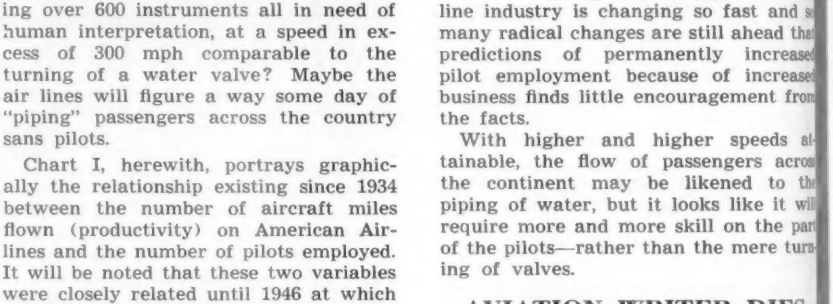
With higher and higher speeds attainable, the flow of passengers across the continent may be likened to the piping of water, but it looks like it will require more and more skill on the part of the pilots—rather than the mere turning of valves.

For the Records

S. B. Kaufman, Assistant Chief Engineer of Pan American World Airways has called to our attention our report in the July issue of The AIR LINE PILOT that a DC-6B made a record flight from San Francisco to Washington, D. C., in 7 hours, 6 minutes. We find that a PAA Stratocruiser flew the same airway in March, 1941, in 6 hours, 13 minutes.

AVIATION WRITER DIES

Gerard B. Dobben, 49, legislative editor of American Aviation since 1943, died of cancer in Georgetown Hospital, Washington, D. C., on September 6. Burial was at Muskegon, Mich., on September 11.



SKYWAY "PARTY LINE" **This illustrates how United Air Lines new VHF (very high frequency) static-free radio network and telephone circuits link planes and ground stations for "party-line" communication. The pilot of plane "B" is within VHF range of planes "A" and "C" and consequently can talk directly to their pilots. Plane "A" at Chicago and plane "C" at Cleveland are beyond VHF range, since very high frequency signals are blocked by the earth's curvature, but their pilots can exchange messages by talking through network stations linked by telephone lines. Operators in Chicago and Cleveland can talk via the network to all United planes in the area and can hear conversations between planes or between a plane and an operator.**

Atlantic Route Transfer and Seniority

Aeronautics Board Given Wrenn's Recommendations

In his report on August 24 on the reopened North Atlantic Route Transfer Case, Examiner Thomas L. Wrenn recommended to the Civil Aeronautics Board that the seniority rosters of several classes and crafts involved in the Pan American and American Overseas Airlines be integrated by board order.

The report of Examiner Wrenn, comprising some 60 pages, reviews the history of this controversial problem and includes a comprehensive discussion of the legal points involved. Quoted herewith are some of the more pertinent phases of the report:

"The record herein clearly points to the conclusions: (1) That the problem will not be settled by voluntary agreement or by arbitration; and (2) That the Board must either take some definitive action respecting seniority or by inaction leave the seniority question 'to haphazard determination by the interplay of economic pressures and employee and company self-interest, a process which is hardly calculated to lead to any equitable result.' "

"Briefly, the theory of jurisdiction is: First, Congress has the power to change or cut across acts of State legislatures or private contracts where they interfere with the exercise of a Federal power granted to Congress under the Constitution.

"Second, the Railway Labor Act was enacted prior to the Civil Aeronautics Act, and any of its provisions which seem to conflict with a power granted to the Board in the Civil Aeronautics Act are abridged to the extent necessary to carry out the objectives of the Act.

"Third, the Act does not give the Board authority to impose restrictions on labor so that it could compel labor to accept conditions which are not agreeable, but the Act gives the Board power to restrict the contracting authority of the carriers involved in a merger or acquisition so that the carriers' bargaining power with labor will be limited in whatever respect the Board finds is required by the public interest.

"Fourth, labor is then faced with an election of whether it shall accept the restriction imposed on the contracting authority of the carriers or resort to any legal rights available under the Railway Labor Act, including the right to strike.

"Fifth, if the employees strike, the carrier is authorized to fill the jobs on a permanent basis, and is not required to rehire them when the strike is called off except to the extent that vacancies still exist, and to the extent that there may be former employees to fill them.

"Sixth, if the Pan American flight engineers or pilots or other crafts propose to act as the authorized bargaining agent of the entire group of flight engineers, or pilots or other crafts, they are under the legal duty to bargain without discrimination against any minority group. If they fail to do so their actions may be enjoined by proceedings in the United States District Court.

"The record shows that the seniority clauses in the contracts of the pilots, flight engineers, and mechanics were written before the agreement between Pan American and American Overseas and American Airlines. Those clauses were designed to cover employees hired by Pan American and not employees brought over as a result of a merger. If the American Overseas employees had come to Pan American by voluntary application for employment based upon a freedom of choice between prospective employers, then the contention of the Pan American employees would be more persuasive; but they did not. It seems clear from the record that this freedom of choice of employment is the type which was contemplated when the seniority provisions were incorporated in the collective bargaining agreement and that any claim to the contrary at this stage is an attempt to impute retroactive consideration and intent which were not present, certainly not in the minds of one of the parties to the agreement. Therefore, it follows that any action by the Board merging seniority would not violate the terms of the collective bargaining agreements as they were not intended to cover a merger or acquisition situation."

"However, length of service applied prospectively requires some adjustments in the case of the pilots in order to prevent inequities. As previously stated when American Overseas was first formed it was necessary to employ crews with sufficient experience to operate the aircraft; therefore, it set very high qualifications and hired captains with as much as 12 years of flying experience with other airlines. It gave them an adjusted seniority date based upon that experience. There has never been any question raised in American Overseas as to the fairness of that arrangement. To rearrange the lists now in accordance with length of service would be unfair to these men. The length of service plan as offered does not take this experience into consideration.

"These American Overseas pilots went with the company with the promise that they would be given credit for their previous experience and should not lose credit for it because of this merger which was not of their making but which in fact they generally opposed. It is only fair and equitable to these men that they be given credit for their previous airline experience. This would apply to the first 52 pilots on the American Overseas list since adjustments in seniority dates were not made after that number, and there was no promise by American Overseas in offering employment that credit would be given for previous flying experience to persons subsequently employed."

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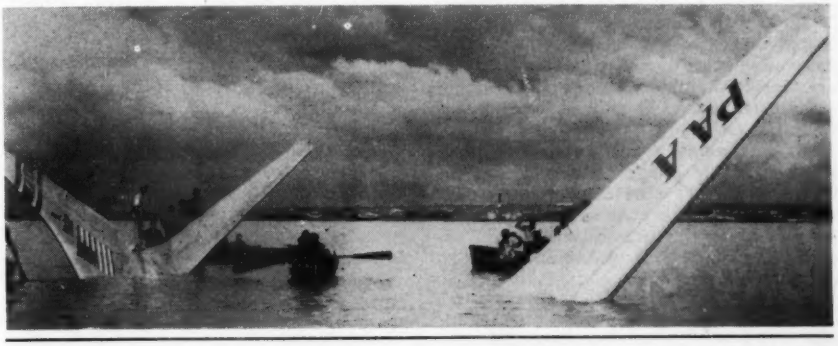


LUCKY THEY **Pictured are two incidents without a death or an injury. (Top) This Northeast Air Lines DC-3, with 16 passengers aboard, was forced to crash-land at the Naval Air Base at Weymouth, Mass., when fire developed in one engine soon after leaving Logan Airport. (Bottom) A portion of a wing and the tail of a Pan American Convair after it crash-landed and sank in the harbor at Kingston, Jamaica. All 29 passengers and crew of four were rescued. The plane started its flight at Miami and was less than a quarter of a mile from the Kingston Airport. These two incidents without loss of life or injury are evidence again of the inherent skill possessed by the pilots.**

FALLS IN BAY Coast Guard rescue workers probe ruins of United Air Lines Stratocruiser which plunged into San Francisco Bay on September 12. Plane was on a training flight and carried no passengers. The crew was comprised of Pilots Hugh C. Worthington and Fred Angstad, and Flight Engineer Charles Brogden.

BELLY LANDING This non-scheduled Peninsular air transport C46 belly landed outside Chicago's Midway Airport on September 17. Twenty-five of the 53 persons aboard were injured though none seriously. The pilot was B. J. Mountain of Miami.

Rigid Wage Control Will Hamper Country's Advancement

"If you keep wages rigid and don't get guns which are needed or airplanes which are needed the cost in holding the wage line might be too great in terms of the impediments to the arms program."

This warning was given by Dr. George W. Taylor on his retirement as Chairman of the Wage Stabilization Board to return to the University of Pennsylvania. He is succeeded by Nathan P. Feinsinger, University of Wisconsin professor. Dr. Taylor challenged the claims of the National Association of Manufacturers, Chamber of Commerce of the United States and some newspapers that wage increases generally are inflationary. Here are the highlights of his report:

"In developing its policies, the Wage Stabilization Board has not only the objective of wage stabilization, but also three other objectives to keep in mind—the preservation of industrial relations stability, the preservation of collective bargaining to the fullest possible extent and the fostering of maximum defense production.

"If you keep wages rigid and don't get guns which are needed, or airplanes which are needed, the cost in holding the wage line might be too great in terms of the impediments to the arms program.

"A wage stabilization program adapted to defense production needs and to proper considerations of equity cannot be achieved simply by freezing wages at some selected date.

"Nor can it be accomplished through a single formula such as the imposition of a 10 per cent ceiling on wage adjustments.

"Such a ceiling would be a freeze at a higher level. Such arbitrary approaches would have little merit if they left glaring inequities which would result in losses of production through employe dissatisfaction, strikes, or inability to secure the right labor at the right place and at the right time.

"Lower productivity and lower production could aggravate the inflationary tendencies prevalent in the economy as seriously as increased purchasing power resulting from wage increases.

"Wages provide purchasing power.

"But they also have other economic functions to perform. When people are paid sensibly in accord with the work and skill involved, there then exists an incentive to production. That is also the basis for stable industrial relationships.

"The kind of a wage stabilization program that is needed is one which will regulate wage movements in such a way as to minimize inflationary pressures, buttress price controls and prevent manpower pirating while retaining the flexibility necessary to correct hardships and inequities and encourage maximum industrial output.

"The co-operation of labor and management is essential in the development and administration of a wage stabilization program in our kind of a democracy. Their expert knowledge and first-hand experience with the complex problems of industrial relations is essential to the formulation of a workable program.

"Wage stabilization also requires restraint. The presence and participation of labor and management representatives on the WSB tends to exert an affirmative restraining influence on these two large segments of our economy and encourage broad acceptance of the wage control program.

"Contrary to the period of World War II, there is no formal no-strike pledge in effect, and indeed no one advocates the outlawing of the fundamental right to strike in a limited mobilization period.

"The administration of a wage stabilization program by a tripartite board implies, however, participation in the development of wage restrictions by all parties in the economy, and is thus effective as an assurance of some measure of industrial relations stability, even without a formal no-strike pledge.

"The current wage stabilization effort is based on such a foundation—voluntary compliance with policies and regulations hammered out in the give-and-take atmosphere of a tripartite board composed of experienced representatives of labor, management, and the public."

ACTIVE DUTY

Arthur Godfrey smiles from the cockpit of a jet plane after reporting at the Pensacola (Fla.) Naval Air Station on September 9 for two weeks of active duty. The TV-Radio star holds the rank of Commander in the Naval Reserve.

ALPA 404 COMMITTEE Here are the pilots and representatives of the Glenn L. Martin plant who participated in the progress of design of the Martin 404. From left to right: Melvin Taylor, Martin service representative; Tom Bothwell, EAL; Paul Charles, EAL; Ken Winsor, EAL; Cy Steinart, TWA; Bart Hewitt, TWA; Pat Tibbs, Martin Director of Flight Test; George Rodney, Assistant Director of Flight Test; Ted Linnert, ALPA Engineering and Air Safety Department, and Bud Jury, TWA.

ALPA Pilot Committee Flies Martin 404

Group Assembles Observations to Evaluate Craft

By THEO. G. LINNERT
ALPA Engineering and Air Safety Dept.

Progress of design of the Martin 404, and other air line transports which are in the prototype stage, obviously is of keen interest to pilots.

Over a considerable period, TWA and EAL pilot representatives have been in contact with their respective air line companies and the Glenn L. Martin Company during the development of the Martin 404.

Representatives for ALPA during these conferences have been veteran Captains R. N. Buck, A. C. Lundberg and Jack LeClaire of TWA; Captain P. D. Charles of EAL, and the writer, from Headquarters.

ALPA is appreciative of the opportunities given by the carriers and the Martin Company to participate in this progress of design.

Though ALPA had been active in the Martin 404 project since its inception, it was considered advisable to enlarge its advisory committee to review and then fly the latest model airplane inasmuch as practically all revisions in design and flight test were nearly completed. The committee appointed was comprised of:

P. D. Charles, EAL Council 18, Miami.
T. H. Bothwell, EAL Council 17, Atlanta.
K. W. Winsor, EAL Council 51, New York.
C. E. Stewart, TWA Council 2, New York.
B. G. Hewitt, TWA Council 25, Chicago.
E. F. Jury, TWA Council 2, New York.
T. G. Linnert, ALPA Engineering and Air Safety Department.

This committee compiled an evaluation program which was composed of the following items:

I. FLIGHT HANDLING CHARACTERISTICS

1. Indications of the stall were clearly announced by buffeting approximately 15 mph before full stall. Control during the stall was good with an approximate 300 foot loss of altitude during recovery to level flight.

2. Stall warning range lessens with gear down and flaps in a takeoff position. Loss of altitude approximately same as above with good control for recovery.

3. Steep turns at bank angles up to 45° were made with one engine inoperative and the aileron boost "on" and "off." The plane handled well in the turns with boost "on" and with the boost "off" a noticeable buildup of control pressure was in evidence as was expected.

4. TWA pilots with Martin 202A experience noted definite improvement in landing characteristics. Better elevator control during final stages of approach and at touchdown. Smoother landings effected with the new landing gear shock absorber drag-link setup on this 404 model than on the 202A model.

5. Single engine procedure with one prop used in reverse thrust after landing showed good control of direction with use of nosewheel steering. This was done on dry runway, with reversed prop at 1800 RPM.

6. Ground handling with nosewheel steering and braking main gear.

Nosewheel steering tends to be touchy. Brakes touchy and noisy but normal pressure achieved good braking action.

II. PERFORMANCE—EMERGENCY CLIMB, ETC.

Simulated engine failure during takeoff at V_1 speed.

1. A very rapid acceleration from V_1 to V_2 (a speed of 120 mph) was accomplished with the left engine developing full 2400 H.P. It was necessary to haul the ship up in an abrupt manner to maintain the 125 mph best rate of climb airspeed. This resulted in a short period of time climb rate of approximately 700 fpm. The stabilized rate of climb, at a speed somewhat greater than best rate of climb speed, was approximately 350 fpm.

The airplane handled with not too great a control pressure during the climb-out. Several one engine inoperative take-offs were made and during one takeoff and climb-out, full power was held for 2½ minutes and an observed indicated altitude of 1180 feet was reached. The average rate of climb for this takeoff and climb-out was almost 500 fpm.

III. GENERAL AIRPLANE INSPECTION (Ground Inspection — Exterior)

1. Propeller clearance of 12 inches is on the Martin 404 representing approximately a 2½ inch increase over that of earlier model Martin 202 airplanes.

2. The main gear is approximately the same as that installed on the 202A airplane with the exception of the drag-link strut which has a feature of incorporating a shock absorber which lets the main wheels travel aft about 7 inches. This makes for an added shock absorber for landings and consequently smoother landings can be made.

3. An inspection revealed that the Martin 404 design indicates that consider-

(Continued on Page 11, Col. 1)

PILOT DIES **Carl D. Crew, Los Angeles Airways, ALPA Council 105, was killed when his mail carrying helicopter crashed while circling for a landing at Lynwood, Calif. Crew was the second ALPA member to lose his life while piloting a helicopter. Witnesses said there seemed to be an explosion which blew off a rotor. Carl F. Eck of ALPA's Engineering and Air Safety Department aided Los Angeles pilots in investigating the incident.**

Atlantic Route Transfer and Seniority

(Continued from Page 5, Col. 3)

"These arguments are fully documented with persuasive points of authority supporting the proposition. . . . The foregoing authorities support the proposition that the Board can cut across these collective bargaining agreements in order to further the public interest, which interest must be paramount to private rights in a regulated industry."

"There remains for determination what the lists or the method of establishing them or the method of establishing seniority should be. Any method of settlement that may be evolved will work some hardships in some individual cases. No plan can be completely free of such criticism. The objective is to utilize a plan which is the most equitable for the greatest number of employees and one which would prevent any group from getting an undeserved windfall at the expense of another group."

"Upon the basis of the foregoing considerations and all of the facts of record, it is recommended that the Board find:

"1. That the Board should prescribe an integrated seniority list for the pilots, flight engineers, flight service personnel and mechanics and ground personnel.

"2. That the Board has jurisdiction and authority over Pan American World Airways, Inc., and the labor groups involved herein to settle seniority problems arising from the tranfer of American Overseas to Pan American World Airways, and that integration of the seniority lists would not be in violation of any collective bargaining agreement, but, even if it is, the Board has the authority to require such integration.

"3. That the Board should order Pan American World Airways to integrate the Pan American and the American Overseas seniority lists for pilots, flight engineers, flight service personnel and mechanics as of January 24, 1951, on the basis of length of service to be applied prospectively from that date with the following adjustments:

(a) give the first 52 pilots on the American Overseas list credit for service with other airlines prior to going with American Overseas Airlines, the length of service to be determined by Pan American and the American Overseas pilots or submitted to arbitration;

(b) promote at their present base stations any American Overseas personnel who should have been promoted under the Board's order of January 24, 1951;

(c) retain the American Overseas stewardesses RN as pursers;

(d) reinstate the former American Airline mechanics dismissed June 13, 1951, by reason of being placed at the bottom of the Pan American list, minus any separation pay, employee protective condition payments, or earnings at other work.

"4. That the Board should order the labor groups involved to co- operate with Pan American in the integration of seniority lists prescribed by the Board and refrain from any action which might prevent Pan American from putting such integrated lists into effect."

The report and recommendation of the examiner are replete with references to the efforts made by the Board without success to induce the interested parties to settle their differences among themselves. This desire of the Board is carried into this latest recommendation by an invitation to the employees that they accept their responsibility in this regard. The examiner states:

"If prior to the Board's decision any of the classes or crafts of employees should reach a voluntary agreement on the matter or should submit it to arbitration agreeing to be bound by such arbitration, then the Board should withhold any action looking toward prescribing a seniority list for such class or craft."

The Air Line Pilots Association has always been an advocate of the principle that employees settle their differences among themselves, and it still seems a more appropriate procedure than to stand adamant and await the action of some tribunal which might force a decision upon them.

Your New SOCIAL SECURITY

By HY E. PADWAY
Manager, Social Security Field Office

703 W. 66th St.
Chicago 21, Ill.

QUESTION: I was in the U. S. Air Force during World War II from 1941 through October 1945. I received half pay from my employers 1941 through 1943. How does the $160 a month credited to my Social Security Account by the Government for my military service tie-in with the pay I received from my employer?

ANSWER: Veterans provisions permit crediting your account with $160 for each month you served in the Armed Forces during World War II if your discharge was "other than dishonorable." You will be credited with $160 per month in addition to any wages reported for you. The combined total can not exceed $3,000 in any year before 1951.

QUESTION: Is there any way I can find out how much my Social Security record of wages shows?

ANSWER: You may write directly to the Social Security Administration, Candler building, Baltimore 2, Md., or better, you can secure a card form OAR-7004 from your local Social Security office. The statement of your earnings they have credited to your account will be sent to you in a sealed envelope.

QUESTION: How much will I get when I retire at 65?

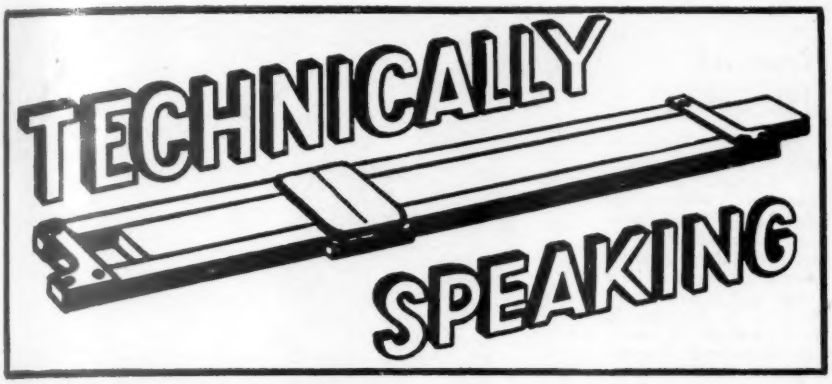
ANSWER: Monthly retirement benefits range from a minimum of $20 per month to the maximum of $80. They are based entirely on the average monthly wage under Social Security.

This table will help you to get an idea of benefits payable at different average monthly wages:

Your average monthly wage	Your monthly retirement benefit	Maximum payable monthly to a family
$ 50	$25	$ 40
100	50	80
150	57.50	120
200	65	150
250	72.50	150
300	80	150

QUESTION: In addition to being a stewardess, I am a partner in a convalescent home in Michigan. Am I considered as being self-employed also? Must I report my share of the profits from the home?

ANSWER: Yes, you are self-employed. You must report your net income from your business unless your salary as a stewardess is $3,600 or more a year. This is the maximum amount of wages taxable in a year. Self-employment income may be rcedited in addition to wages to a combined total of $3,600 a year.



FOREIGN JET-POWERED TRANSPORT DEVELOPMENTS

(Editor's Note: This is the concluding article on an air line pilot's views on the jet transports he flew and inspected as a member of the European survey group of the Prototype Aircraft Advisory Committee. The ALPA member of this group is Captain William W. Moss, Jr., PAA Transatlantic Council 36, who has had 10 years with the carrier and four years with the Navy.)

By WILLIAM W. MOSS, JR.

ARMSTRONG-WHITWORTH

The Mamba-powered Apollo did not appear to be a very successful prototype and no production is planned.

Over a 500 mile stage distance, as computed by the SBAC "Standard Method for the Estimation of Direct Operating Cost of Aircraft," the cost per airplane mile is estimated to be 87.1 cents and the cost per ton mile to be 22.4 cents.

A barometer of engine reliability is the Apollo's 263 hours of flying without an engine failure. Another interesting figure is their use of 300 hours as the scheduled time between engine overhauls in their cost assumptions.

Wing loading 45.6 lbs./sq. ft.

ARMSTRONG-SIDDLEY MOTORS

They were of the opinion that no flight engineer would be necessary for a four-engine turbo prop airplane, as automatic controls are inherently required for engine operation. However, on the automatic controls their thinking diverges from that of U. S. manufacturers in their use of mechanical or electro-magnetic rather than electronic controls. In regard to fuel systems, they believe one good system is preferable to the more complicated and troublesome duplicated system; however, they use hydraulic or mechanically operated valves, etc., which "fail safe."

A short test flight in a Mamba-powered DC-3 was useful mainly to demonstrate the simplicity of flight operation and instrumentation of this power plant. The rpm range was notable, being 15,000 for takeoff, 14,500 in climb, and 12,100 in cruise. The engine feathered in approximately eight seconds and relighted easily at 4,000 feet. It was reported that one of the engines was feathered at 25,000 ft. OAT—50°C and unfeathered and relighted easily an hour later at 20,000; OAT—40°C.

Although not enough operational experience has been obtained to say definitely as yet, Armstrong Siddley thought that the engine failure rate of turbo props should be better than that of piston types. The fire protection problem of turbines is much less due in part to the small amount of lubricating oil required. However, the fire detection problem is acute due to the extremely high operating temperature.

BRISTOL

The Brabazon was an extremely impressive development, particularly in the spaciousness of interior accommodations. If it should ever be put into North Atlantic non-stop service it should, in spite of its slow speed of 260 mph for the piston type and 340 for the turbo-prop version, be a useful yardstick as to the economy of operation, passenger appeal, and operational flexibility of the 300,000 lb. airplane.

The Bristol 175, although the prototype is not yet flying, is well along in production for BOAC and appeared to be a well designed transport. Unfortunately, time did not permit a full evaluation of its estimated performance. However, the figure of 25,000 lb. payload, over an ultimate range of 2,500 miles, with a block speed of 348 knots gives some idea of how much an advance this development is over present types in operation. For a rough comparison the B-377 can carry approximately 24,000 lbs. payload over a 2450 mile range with a block speed of 238 knots.

Wing loading 63 lbs./sq. ft.

Propeller problems should be much less with turbo prop engine since engine excited blade vibrations are much less than with reciprocating types.

The Bristol "free turbine" design seems to offer advantages in flexibility of rpm range, in starting, and feathering.

BRITISH EUROPEAN AIRWAYS

The most important subject discussed with BEA was that of simulated scheduled airline operational tests of new equipment. On the basis of the BEA operation last year of the prototype Viscount during which they flew 140 hours in 22 days, making three round trips per day London-Paris their feeling was that there was much to be gained by a prolonged test of this nature. Although it was felt desirable to run such tests with equipment, the operation of a military plane would be of inestimable value in providing actual data for the development of operating techniques. The figure mentioned for the duration of such test was 1000 hours and it was felt that such an operation should be run by an airline and be completely divorced from military control.

One very significant point mentioned was that considerable deterioration of power was noted during the Viscount operation. Absolute figures were not given, and no other fix on this problem was obtained during the tour.

Following along this line of thought, BEA is now gaining considerable experience by their operation of three Dart-powered DC-3's on **scheduled freight runs.**

In regard to the approach control problem, BEA agrees with BOAC that radar ground control is their answer. In the London area, it is planned to hold the turbine aircraft in a high altitude stack separate from and above the reciprocating type stack. When its approach time is reached, the turbine aircraft will execute a rapid descent with ground control providing separation from other traffic. There is no thought as to the turbine-powered plane having any approach priority nor, due to the poor point-to-point communications in Europe, is it planned to have the expected approach time allocated before the plane takes off.

In discussing holding reserves, it was apparent that the advantages to be gained by holding on two engines (with four-engined planes) would not be used for calculations of normal reserves, but that it would be a factor considered ultimate-

(Turn the Page)

SUPERJET **This is the first picture released of the extreme swept back wing plane which the British Royal Air Force claims is "the best fighter aircraft in the world." The power plant of this Hawker P-1067 fighter-interceptor is an Avon jet engine. Performance of the craft is a guarded secret.**

Technically Speaking

(Continued from Preceding Page)

ly in that its use would be available for semi-emergency conditions. In this regard, due to icing problems, such use would be impossible under icing conditions.

The final report of the Clear Air Gust Research Project was made available to the committee and I think the significant points of it are as follows:

1. "Possibilities of gusts up to 36 or 40 fps (US standard) may be extrapolated.

2. "Because they are met with little or no warning, clear air gusts will tend to be associated with the normal cruising speed of the aircraft, irrespective of the magnitude of the gusts. On the other hand, the basic gust envelope of the British Civil Airworthiness Requirements associates the largest gust velocity with a speed less than the design cruising speed. The implications of this difference on the design requirements for high flying aircraft should be examined."

3. "The frequency of occurence of clear air turbulence at high altitude is such as to make ia a significant problem from the point of view of passenger comfort. Since the turbulence can be encountered with little or no warning, further research should be directed to establishing a reliable basis for forecasting turbulent areas."

4. "The turbulence occurs in isolated patches of which a representative size is 50 to 100 miles long by about 3000 feet thick. It may occur over a wide range of altitude, particular topography or geographical position."

5. "Gusts of low and moderate intensity occur at approximately the same frequency at high altitudes in clear air as they do at low and moderate altitudes in all flight conditions. On the other hand severe gusts probably occur much less frequently in clear air at high altitude."

6. "Since severe gusts can occur in clear air at high altitudes the possible implications on design requirements should be examined. Further, the present conception of a 'flat topped' gust for design purposes is not realistic, as in practice a turbulent region is characterized by a rapid succession of positive and negative gusts."

7. "The available evidence suggests that clear air turbulence occurs in regions of high vertical wind gradient (which is equivalent to a high horizontal temperature gradient) and that the Richardson criterion for turbulence is applicable."

8. "More data is needed before a forecasting technique can be established. It has been found, however, that severe turbulence may be found in a 'jet stream' and that turbulence is frequently found near the tropopause."

9. "The results described in this report were obtained over Western Europe. They do not necessarily apply to other parts of the world."

FRANCE

The general impression gained from visits in Paris to the SGAC (Secretariate Generale Aviation Civil), S.N.C.A.S.O. (Societe National Construction Aviation Sud Ouest), Broguet, and Air France was that the French have no practical turbine powered transports under active development and that their current developments are no competive threat to the U. S.

The only jet transport type is the Nene Powered S. O. 30, which is apparently only for research work into the problems of high altitude operation, etc.

The other interesting development at SNCASO was the use of a "Turbomecca" auxiliary jet beneath the fuselage of a DC-3 to increase its gross weight by 3,000 lbs. accompanied by a better single engine performance.

The Broguet 763 is mentioned here, although it is not a turbine-powered plane, to illustrate the level of the French commercial transport development. It is a 50 metric ton double deck transport powered by four R2800 engines, and is not pressurized. Performance figures quoted were for a 1300 mile range (ATA formula with 200 miles plus 45 minutes reserve), 225 mph block speed, and a 5500' runway required for take-off. Fourteen are in production, with 12 being allocated to Air France for second class passenger and freight use, probably between France and North Africa.

Aiir France seemed to feel that it was highly desirable to have a period of service test before the carriage of passengers. In the case of Broguet 763, this period is presently set at 800 hours on one aircraft by the S.G.A.C. and the cost will be borne by the government. Until 800 hours have been accumulated on one plane, the passenger carrying type certificate will not be issued.

SWISSAIR

The visit at Zurich, while unproductive in regard to turbine development, etc., was noteworthy for the inspection tour of the Intercontinental Airport at Zurich and of the Swissair maintenance shops.

The Intercontinental Airport is already a first class airport with an instrument runway length of 8500' and cross runways of 6200' and 5000' respectively. However it is planned to lengthen the two longest runways to 11,500' and 8,200' respectively.

One of the most impressive features of the airport planning is the realization of the importance of a good high intensity approach light system. Although there is already installed a single line of high intensity lights offset about 50 foot to the left of the runway center line, a modified Calvert system is being installed. This will consist of a line of high intensity lights 2950' (900M) long on the runway center line extension, with six high intensity cross bars decreasing from 262' (80m) wide to 85' (26m) toward the threshold. All lights are white, except the threshold lights which are green and the lights at the far end of the runway which are red. The runway lights are all high intensity and in addition a line of low intensity flush lights are installed in the concrete down the complete center line of the runway. On top of all high intensity lights is placed a low intensity light visible through the complete 360° range.

I feel that this is a very well planned and useable system, and that the Swiss have made an excellent choice in their installation, in the absence of international agreement as to a standard approach light system.

The control tower is well equipped, one noteworthy feature being their use of the visually indicating VHF direction finder which automatically indicates the bearing of a transmitting airplane. This, while not a strictly new development, is the first such installation I have observed and should be an aid to airport traffic control.

While not an operational item, the terminal building could well be used as a model, with its separation of incoming and outgoing passengers, its two auto ramps, and the use of a basement ramp for baggage and freight handling.

All in all this airport showed every

(Continued on Page 14, Col. 1)

Best of Attention

Pilot Jack Hall (on stretcher), Pan American Council 56, San Francisco, smiles his approval of the attention being paid him by Sister Elizabeth Kenny, veteran Australian nurse and a pioneer in the use of therapy in the treatment of polio, and Rosalind Russell (right), who has aided the nurse in her fight against the disease. Hall was stricken with polio in Tahiti and was taken to Australia for supervised treatment by Sister Kenny. Actress Rosalind Russell greeted the two as they returned to this country at Los Angeles.

TABLE 1

Incidents of Smoke or Fumes in U. S. Civil Scheduled Air Carrier Aircraft (January 1-June 30, 1951)

Source of Smoke or Fumes	Number of Incidents	Per Cent of Total
Radio and electronic equipment	38	37
Other electrical equipment	20	19
Heater	10	10
Ventilation or pressurization system	8	8
Hydraulic fluid	6	6
Gasoline	5	5
Batteries	5	5
Galley	4	4
Miscellaneous	4	4
Unidentified	3	3
Total	**103**	

TABLE 2

Tabulation of Incidents of Smoke or Fumes According to Place of Occurrence (Ground or Air) and Whether an Unscheduled Landing Was Made

Source of Smoke or Fumes	Total	Ground	Air	Unscheduled Landings
Radio and electronic equipment	38	9	29	3
Other electronic equipment	20	4	16	7
Heater	10	1	9	3
Ventilation or pressurization equipment	8	0	8	5
Hydraulic fluid	6	0	6	0
Gasoline	5	1	4	1
Batteries	5	5	0	0
Galley	4	0	4	3
Miscellaneous	4	2	2	0
Unidentified	3	0	3	1
Total	**103**	**22**	**81**	**23**

The Committee on Toxic Gases of the Aero Medical Association has prepared two tables for the study of those who are concerned with the toxic hazards in air transport.

To give authenticity to its report, the committee has taken 103 incidents for its study. These 103 incidents of smoke and fumes occurred in U. S. civil air carrier aircraft from January 1 to June 30, 1951, and were reported in the Summaries of Daily Mechanical Reports—Scheduled Air Carrier.

The two tables are self-explanatory.

Members of the two committees making this survey were: Dr. William R. Stovall, Washington, D. C., Chairman; Colonel John E. Boysen, USAF, Wright-Patterson Air Base, Dayton, O.; Captain James L. Holland, USN, Washington, D. C.; Dr. Alfred V. Jordi, Zurich, Switzerland; Dr. W. Randolph Lovelace II, Albuquerque, N. M.; Dr. Ross A. McFarland, Cambridge, Mass.; Colonel Arnold D. Tuttle, USA (ret.), Chicago.

Pilots Appraise Martin 404 in Test Flights

(Continued from Page 7, Col. 3)

able effort for adequate servicing provisions are in evidence.

4. Inspection doors appear to be adequate in number for visual inspection of the highly important areas of the airplane. Heavier fuselage inspection doors, fuselage door and door frame design is in evidence due to the pressurized fuselage feature.

5. The exterior lighting arrangements of the aircraft conform with conventional practice. The only comment the pilot committee had to make was that it was felt a nosewheel strut light that moves with nosewheel steering should be included on a modern up-to-date transport. This feature may be added at a later date.

6. The Martin 404 features a built-in ramp for deplaning all passengers. This built-in ramp feature is of great assistance for rapid evacuation in the event of emergency while the ship is still raised on its landing gear.

7. Refueling can be done from the bottom side of the wing or from the top side of the wing. The more modern "underwing" fueling in the Martin 404 permits fueling by the service crew without the dangerous maneuvers required for climbing around on the top surface of the slippery wings.

The fuel tanks are of the flexible cell type and are considered to be the safest type for carrying fuel, by being highly resistant to damage with relatively severe structual deformation from crash effects. ALPA has long endorsed this type of tank to minimize fire hazards resulting from crash effects.

8. Emergency exits are up-to-date in design and are adequately marked and placarded for instructions to open them from within the cabin and also on the outside surface of the fuselage.

IV. COCKPIT ARRANGEMENTS

1. **Instrument Arrangement:** Instruments arranged to customers' requests. Air line company and pilots participated in the instrument arrangement. No comments from the Evalution Committee other than the instrument arrangement appears satisfactory.

2. **Radio Control Arrangement:** Radio control arranged to customers' requests. Air line company and pilots participated in the radio control arrangement. No comments from the Evaluation Committee, other than the radio control arrangement appears satisfactory.

3. **Cockpit Lighting:** No night flying was performed by the Evaluation Committee; therefore, no direct comments other than the cockpit lighting has been explored earlier in the manufacturing process of the airplane.

4. **Accessibility of Captain's and Copilot's Controls, Switches and Gadgets:** No comments from the Eavluation Committee except that the accessibility of all items requiring attention or action by the Captain or Copilot appear to be located favorably and illustrate that considerable study is in evidence for the entire cockpit make-up.

This program was followed in detail and brought about an exchange of ideas and information that we considered mutually beneficial. As a whole, there is general agreement in the pilot group visiting the Martin factory that the Martin 404 shows much improvement in all respects over the Martin 202 airplane, illustrating the advantages obtainable when a lengthy service test and development time period occurs between models.

LOT OF SWEETS

Sweet smile and a sweet piece of pastry are the rewards received by Daniel E. Parker who checked in at the Los Angeles International Airport as TWA's 11,000,000th passenger. Making certain that he gets a wholesome first bite of the ceremonial cake is Mary Reardon, ALSSA's TWA Council, Los Angeles. Holding the cake is Captain Kenneth Woolsey, ALPA Council 4. Parker, a salesman, took Flight 16 out of Los Angeles on the first span of his trip to Rome, Italy, to visit his daughter.

ALPA Requests Pilot-CAA Radar Conferences

(Continued from Page 3, Col. 3)

an ADF simplifies an orientation on a low frequency range. Controllers are less likely to make mistakes while looking at a picture of the traffic. Errors in issuing or interpreting clearances, and mistakes in position reports will be caught and corrected. The sequencing and spacing of arrivals can be accomplished better than with any other IFR technique.

We think the proper use of ground radars can speed traffic handling by from 50 to 100 per cent. The need for such an increase in the capacity of the traffic control system is urgent. Airline fleets are being enlarged. Schedules are being added. Next Winter is almost certain to see an increase in delay and confusion in critical areas. Radar is the only means at hand to stem this tide.

But, most important of all, safety factor should be increased by the radar even more than the efficiency of control will be improved. We will have, for the first time, a degree of protection against the Number One hazard of air traffic—the uncontrolled VFR traffic in borderline weather, and the willful violator of IFR restrictions.

In critical areas the entire operation will be less jeopardized by the lowest grade of pilot. The 100 horsepower itinerant will not get "lost" when he is told to fly 90 degrees like he does when you tell him: "You are cleared to the Washington Airport via Great Neck, Idlewild, Riis Park, Ambrose and Green Airway Five. Cross Great Neck 1500 . . . and so on and on!"

Radar can guide high density traffic around thunderstorms in terminal areas. Emergencies can be given instant priority.

All this optimism, however, must be tempered by a realistic look at the inherent weaknesses of radar. Let's enumerate the main shortcomings of radar because we will want to refer back to these points through the entire discussion of this subject. Radar is weak on these seven points:

1) The fact that a radar is "seeing" an aircraft on the scope does not prove that it will see another aircraft that may be on a collision course with the first. This can be said in another way. Two aircraft can converge on a collision course. One may be continuously tracked, while the other might not appear at all. This is not likely in areas of good radar coverage, but it is possible. Different aircraft present different reflective surfaces. This same thing will still be possible when all aircraft are equipped with beacons. The reason: With beacons there is still no way of being sure than the beacon reply is being satisfactorily received on the ground. Protection against this weakness is provided in the SWG-5 (Operational Policy Group of the Air Coordinating Committee) proposal. This will be discussed in Part I-B which follows.

2) There is a definite limit to the number of aircraft a controller can handle on a radar scope. Worse yet, the number of aircraft that can be handled will vary from controller to controller. It will vary with the performance of the radar and the degree of precipitation interference on the scope. Furthermore, pure radar control (by vectoring) is like juggling hot potatoes. You can keep more aircraft under control when everything is operating in the normal groove than you can five seconds after an unexpected irregularity occurs. The SWG-5 method of insuring against overloading the radar controller is discussed in Part I-B. What SWG-5 recommended to increase the radar controller's capacity is covered in appropriate sections of Part II.

3) A busy controller can make a mistake in identifying an aircraft on the radar. Or he can get identities mixed up after they have once been established. The safeguards needed to cover other weaknesses of the radar will give what appears to be adequate protection on this point also. Refer to Part I-B following. The problem of identification of aircraft on radar and what is being done to improve the situation is discussed in Part II-C.

4) There is no good way of combining altitude information with the flat, two dimensional radar picture. A serious problem is created by the fact that present radars do not "see" altitude. Casual consideration of radar control often envisions all movement in a flat plane. But airplanes do not fly this way. The sky in a busy terminal area is full of overpasses and underpasses that the radar cannot see. The features of the SWG-5 proposal designed to safeguard against other weaknesses of the radar (Part I-B) have produced answers to this question as a by-product.

5) Radar antenna patterns do not cover the entire hemisphere above the radar. The radar dish (antenna) that you see rotating on the antenna tower throws out a broad beam like a searchlight. Coverage may be poor at low altitude far out, and poorer still at high altitude close in. Aircraft will be lost in the "cone of silence" over the station. Radar beacons in the airplanes will help. In the meantime, traffic patterns will have to be tailored to fit radar antenna patterns. For example, a north or northwest take-off at Washington should follow the northwest passage to go northeast instead of making a left turn around to come back across the field over the radar site. The same safeguards (Part I-B) apply.

6) Heavy rain makes a bright echo on the radar. This may be classed as a weakness if you are tracking a target through the area. It is true that rain above a certain density will make it impossible to follow aircraft targets. Rain of this density, however, is normally only associated with thunderstorms and rarely covers large general areas. In thunderstorm conditions this weakness becomes a blessing in disguise. Both pilot and controller should be happy to route the flight around the worst spots. Until the radar safety beacon (an airborne radar beacon that replies to ground radar) comes into use, however, the basic system must be designed in such a way that safety factor is not compromised when precipitation deteriorates radar performance. The same safeguards (Part I-B) apply.

7) And, finally, it must be admitted that the radar is a costly and complicated piece of machinery. It can fail And at the worst moment. Critical elements of the system are backed up by standby equipment in the CAA installations, but such things as antennas, and display systems are too costly to duplicate. The system must be capable of going back to non-radar operation at a moment's notice. The same safeguards (Part I-B) apply again.

Admitting to the foregoing list of shortcomings of the radar, we nevertheless recommend to all concerned that we go ahead with radar traffic control, building in the necessary safeguards as we go. Perfection will never be reached on some of the items mentioned. We will have a better system in the end by including the necessary safeguards now, than we could ever achieve by delaying and waiting for perfection of radar techniques.

SUPER-CONNIE **The new Lockheed Super-Constellation takes to the air. The new plane is 18.4 feet longer than the Connies currently in service, and will accommodate from 47 to 93 commercial passengers or 110 as a troop transport. It is powered by four Wright 2,700 hp engines with jet stacks. The craft is built with reserve strength for later installation of compound and jet-prop engines.**

DITCHING **Training Midshipmen in the technique of escaping from a crashed plane at sea is ingeniously carried out at the U. S. Naval Academy by means of the Dilbert Dunker. The gadget consists of a mockup of a plane cockpit and a slide that carries the cockpit and trainee down a steep angle into a swimming pool. This series of photos shows the dunker in operation. (1) The cockpit starts down the slide with the trainee pressing his head against the crash pad. (2) The cockpit strikes the water with a splash. (3) It turns over and the middy must now make his escape from the overturned "plane". (4) He does, and bobs to the surface, wet but unbruised.**

Are you wearing a new ALPA emblem? The new pin, which is superior to the old in every way, is available at Headquarters for 75 cents each. It has a bronze base and is gold plated with the letters, ALPA, cut clear and distinct. "EMBLEMIZE" now!

Know Your HEADQUARTERS *Staff*

Because the credit union is a voluntary organization, operating "not for profit, not for charity, but for service," many members of the Air Line Pilots Association overlook the fact that the ALPA Federal Credit Union is a dollars and cents asset to the economy.

This has been pointed out by C. Elmer Solle, recently appointed manager of the ALPA FCU. He comes to the organization after a successful background in the insurance field. In FCU, he functions under the direction of Captain George C. Duvall, Treasurer.

The ALPA FCU, Solle pointed out, has shown a consistent growth in membership and assets. Active members on August 31 totaled 1,845. Both Solle and Captain Duvall are developing an intensive campaign to interest every ALPA member in the purposes of the FCU and to greatly increase its membership within the next few months.

Solle pointed out that the ALPA FCU has never paid less than 4 per cent on the investments which members have in the organization. For those availing themselves of the borrowing privilege, it costs them only 1 per cent per month on the unpaid balance.

After an association with the Franklin Life Insurance Company in Springfield, Ill., the new manager moved to Chicago where he became secretary-treasurer and part owner of an electronics manufacturing company.

He is a graduate of a public high school and a business college. His hobby is music, especially the SPEBSQSA, Inc., which translated means, the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America.

ALPA members will find Solle daily at his desk in office five. He will gladly accept your application for membership in FCU.

ALPA FCU Financial and Statistical Report of August 31, 1951

BALANCE SHEET

Assets

	Aug. 1951
Loans (564)	$289,521.98
Cash	42,782.03
U. S. Bonds	101,726.57
Furniture and Fixtures	2,402.48
Prepaid Expense and Misc.	327.24
Total	$436,760.30

Liabilities

Shares	$415,925.71
Reserve for Bad Loans	4,192.52
Undivided Profits	512.75
Profit	16,128.32
Accounts Payable	1.00
Total	$436,760.30

STATEMENT OF INCOME & EXPENSE (Year to Date 1951)

Income

Interest on Loans	$21,626.69
Investment Income	1,901.65
Other Income	7.06
Total	$23,535.40

Expenses

Office Supplies	$ 667.09
Educational Expense	39.14
Loan Insurance	1,351.49
ALPA Reimbursement	4,000.00
Depreciation	416.60
Miscellaneous	932.76
Total	$ 7,407.08
Net Profit	$16,128.32

Statistical Information

	Aug. 1951
Number of Members	1,845
Number of Potential Members	9,307
Loans Made Since Organization (Number)	1,349
Loans Made Since Organization (Amount)	$831,270.02

CAB's Five-Year Frontier Renewal Is a Precedent

In a significant case of renewing a feeder line's certificate for a period of almost five years, the Civil Aeronautics Board made this following explanation:

"Our decision to extend the certificate for as long as five years . . . should not be read as an unqualified endorsement of the local service experiment in the area involved.

". . . we are fully cognizant of the unique contribution that air service can make to the many communities of the area which are isolated by difficult terrain.

". . . we are aware of the steady improvement that has occurred in the operating results over these routes and we believe that the modifications of Frontier's operating authority ordered herein will enable the carrier to continue to improve its operating position.

". . . we fully expect that, having been accorded the opportunity of a longer renewal period in which to exploit the traffic potential of its routes, Frontier will take vigorous action to develop additional traffic and achieve economies in order to reduce substantially its dependence on government assistance through mail pay. Success or failure on this score will, to a large extent, determine the ultimate fate of this carrier."

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Technically Speaking

(Continued from Page 10, Col. 3)

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SCANDINAVIAN AIRLINES SYSTEM

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1. The Vickers Viscount, Britol 175, and DeHaviland Comet are advanced in speed and passenger appeal over competitive U. S. types and should have considerable competitive advantage when used within their range limitations, but until the instrument approach problem is solved their useful range will be compromised to an unknown extent.

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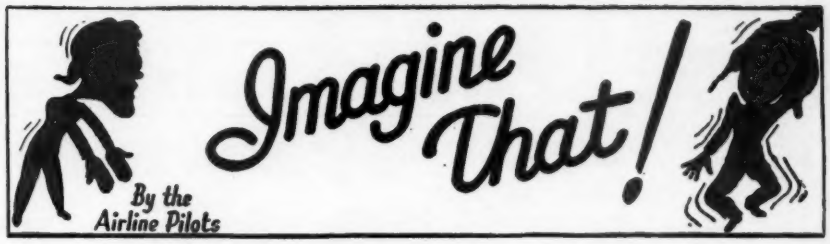

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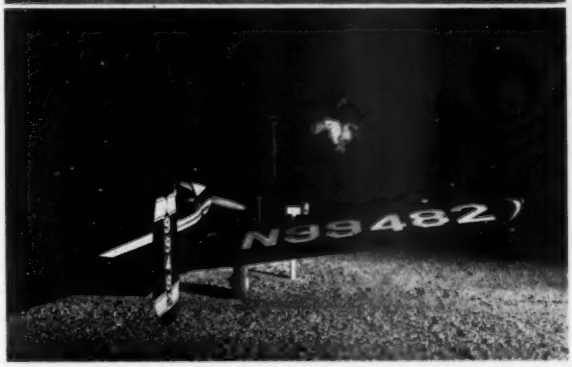

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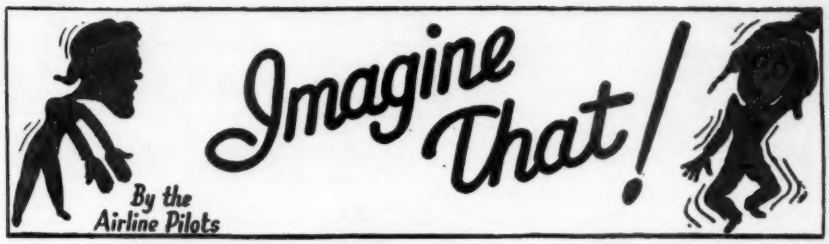

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In Constant Memoriam

"TO FLY WEST, MY FRIEND, IS A FLIGHT
WE ALL MUST TAKE FOR A FINAL CHECK"

Active Duty Air Force

Allen, K. N.—AA
Anderline, F. W.—UAL
Beadles, E. C.—UAL
Berger, H. A.—UAL
Bowen, W. S.—EAL
Caton, C. E.—EAL
Connelly, L. J.—TWA
Darby, J. E.—C&S
Davis, W. E.—Continental
Diltz, H. C.—TWA
Doxey, W. S.—PAA
Duke, A. B.—EAL
Eyre, Lloyd—UAL
Folkers, H. J.—Braniff
Gray, W. B.—EAL
Greenlee, R. L.—UAL
Hazlett, G. W.
Herndon, Thomas—UAL
Howell, P. P.—TWA
Hurren, Aubrey S.
Jackson, Walter—TWA
Keith, W. E.—AA
McDowell, H. C.—UAL
Mills, Arthur—Braniff
Mitchell, H. F.—Colonial
Mostoller, Charles—EAL
Nagel, John—MCA
Nelson, F. S.—WAL
Peterson, Warren—TWA
Quale, R. J.—AA
Roth, P. F.—EAL
Schier, Tip—Delta
Shafer, G. H.—TWA
Skelly, H. J.—AA
Thompson, J. J.—TWA
Treweek, J. M.—AA
Zimmerman, H. J.—TWA

Active Duty—Navy

Carmichael, G. F.—TWA
Jones, J. P.—EAL
Knudsen, Max—TWA
Nelson, R. G.—NEA
Rehm, W. L.—NEA
Roscoe, T. M.—TWA
Sparboe, J. H.—NWA
Williams, R. W.—EAL

Active Duty Marine Corps

Kimball, W. F.—TWA
Pielemeir, H. E.—AA

Active—Accidental

Adams, J. B.—UAL
Alcock, G. A.—PAA
Amthor, W. E.—TWA
Anderson, Lloyd—UAL
Andert, P. A.—UAL
Antonio, S. B.—PCA
Appleby, J. R.—UAL
Bamberger, T. L.—TWA
Banegas, Antonio—TACA
Barrett, J. C., Jr.—PAA
Barron, J. M., Jr.—AA
Bates, C. F.—NWA
Bethel, A. T.—TWA
Bickford, L. A.—Panagra
Bigelow, Edward—UAL
Bliven, L. H.—NWA
Blom, E. W.—UAL
Bogen, W. L.—WAE
Bolnet, F. L.—TWA
Bolton, H. F.—TWA
Bontrager, C. M.—UAL
Borchers, Adrian—PAA
Bowen, J. E.—TWA
Bowen, L. L.—Braniff
Brand, W. J.—AA
Brandon, J. L.—UAL
Brenner, D. F.—NWA
Briggs, F. W.—AA
Briggs, W. P.—UAL
Brigman, R. M.—AA
Broghton, D. E.—UAL
Brown, D. W.—UAL
Brown, F. L.—UAL
Brown, H. B.—NEA
Brunk, P. S.—PAA
Bryan, T. E.—AAA
Bucher, C. L.—CA
Bucklin, Fred—NEA
Bullis, R. L.—PAA
Burks, J. A.—UAL
Burton, R. L.—Inland
Caneta, J. J.—EAL
Carpenter, B. A.—AA
Carson, S. A.—PCA
Carter, Harold L.—Robinson
Chamberlain, C. B.—NWA
Charleton, H. T.—AA
Christensen, E. L.—TWA
Christian, B. W.—NWA
Christian, F. J., Jr.—NWA
Clark, F. M.—Continental
Clayton, R. C.—C&S
Cohn, H. G.—WAS
Cole, D. C.—UAL
Coney, W. E.—EAL
Cooper, D. I.—AA
Cope, Alonzo—Marine Airways
Cox, Floyd—Ludington
Crawford, F. J.—PAA
Crew, Carl D.—LAA
Dace, F. E.—WAL
Daily, B. H.—TWA
Davidson, W. A.—AA
Davis, A. W.—UAL
Davis, Douglas—EAL
Davis, W. J.—CAP
De Blauw, John, Jr.—LAA
DeCesare, Frank—Panagra
DeCesaro, J. G.—UAL
Dietz, S. G.—EAL
Dietze, R. H.—AA
Disosway, J. S.—Delta
Dixon, Andrew, Jr.—Delta
Dowd, J. H.—Pioneer
Dryer, D. F.—AA
Dviak, R. J.—NWA
Eitner, R. G.—AA
Elder, McLemore—AA
Elzsey, R. M.—PAA
Enger, G. E.—NWA
Fey, Howard—UAL
Fidroeff, W. M.—WAL
Fields, G. T.—AA
Fife, M. L.—AA
Fischer, J. F.—NWA
Fletcher, David B.—TWA
Fortner, W. F.—EAL
Foster, L. A.—PAA
Francis, D. B.—AA
Fuller, R. E.—AA
Funkhouser, R. W.—TWA
Galt, J. R.—NWA
Gander, E. J.—NWA
Gardner, G. W.—Panagra
Gay, R. A.—AA
Gray, George—EAL
Gentry, J. N.—PAA
George, Hal—TWA
Gill, D. N.—TWA
Gillette, M. A.—TWA
Golden, Glenn—AA
Gower, V. I.—Delta
Graham, J. H.—MCA
Griesbach, G. C.—UAL
Grover, R. B.—UAL
Haid, A. A.—NWA
Hale, S. H.—EAL
Hallgren, W. A.—AA
Ham, F. M., Jr.—AA
Hammitt, Haldon J.—TWA
Hart, J. F.—NWA
Hart, J. H.—PAA
Haskew, H. M.—EAL
Havlena, G.—PAA
Hazelwood, C. R.—EAL
Hedden, Marion W.—UAL
Henson, C. M.—PAA
Hill, G. W.—AA
Holbrook, C. M.—AA
Holloway, G. L.—Delta
Holsenbeck, W. M.—PAA
Holstrom, A. E.—AAA
Houed, Victor—TACA
Huff, J. A.—NWA
Hunt, Edward—AA
Ice, J. R.—Inland
Inman, R. R.—TWA
Inman, W. B.—EAL
Ireland, B. L.—Continental
Jakel, F. C.—PAA
Jameiller, S. E.—Continental
Jameison W. L.—EAL
Jewett, George A.—UAL
Johnson, R. L.—NWA
Jones, D. B.—NWA
Jones, H. H.—PCA
Jones, L. E.—UAL
Jones, W. H.—UAL
Josselyn, John—PCA
Judd, O. K.—PAA
Kelsey, H. J.—AA
Kelley, R. A. Jr.—EAL
Kennedy, V. G.—TWA
Kincannon, T. N.—AA
King, G. B.—PAA
King, J. O.—EAL
Knight, R. S.—EAL
Komdat, A. C.—EAL
Kroeger, J. H.—PAA
Kuser, R. E.—EAL
Lafferty, Robert—C&S
Lamb, C. S.—UAL
LaMontagne, R. L.—AA
Lampman, L. G.—NWA
Lehr, R. B.—AOA
Lewis, H. C.—TWA
Lind, Robert C.—NWA
Livermore, Joe—NWA
Llewellyn, Frank A.—Robinson
Loeffler, E. J.—WAL
Lucas, Al—Wyoming Air Service
Lucas, Verne—Ludington
Lynn, J. B.—C&S
Majors, R. R.—AA
Mallick, F. E.—UAL
Mamer, N. B.—NWA
Marshall, G. V.—AA
Martin, K. R.—NWA
Matthews, Leroy R.—EAL
McAfee, William—PAA
McCauley, J. R.—AA
McCoy, R. S.—PAA
McGinn, W. T.—NWA
McKeirnan, P. S.—TWA
McLaughlin, J. J.—AA
McMickle, Harold—Panagra
McMillen, E. L.—UAL
Merrifield, A. S.—UAL
Miller, B. D.—AA
Miller, G. D.—NWA
Miller, G. J.—WAL
Miner, W. H.—UAL
Mitchell, J. W., Jr.—EAL
Monsen, A. N.—PAA
Montee, Ralph—TWA
Montijo, J. G.—VAT
Morgan, H. R.—TWA
Morgan, H. W.—PAA
Mossman, R. C.—C&S
Neff, Harold—UAL
Nilsen, N. A.—TWA
Noe, E. J.—TWA
Norby, R. B.—NWA
Nordbeck, H. T.—NEA
Obri, N. F.—PAA
O'Brien, W. E.—PCA
Odell, M. T.—AA
Olson, K. S.—NWA
Onsgard, Alden—NWA
Owens, C. P.—WAE
Palau, E. M.—TACA
Paschal, Archie—PAA
Paulis, Raymond—PCA
Pedley, C. F.—AA
Pell, J. N.—PCA
Perry, J. A.—EAL
Person, A. G.—PAA
Petry, R.—NWA
Phillips, W. M. S.—EAL
Pickup, C. V.—UAL
Pitman, C. V.—Avianca
Poe, K. N.—Avianca
Pope, Francis—TWA
Porter, G. H.—AAA
Porter, L. L.—CAP
Potter, N. W.—UAL
Proebstle, Roy—NWA
Pursley, C. H.—Panagra
Radoll, R. W.—UAL
Raley, R. J.—NWA
Ray, George—EAL
Render, R. F.—NWA
Repack, W. T.—PCA
Rhew, J. N.—C&S
Rickman, L. M.—NWA
Riggs, R. S.—AA
Robbins, W. J. B.—AA
Rousch, C. W.—NWA
Rust, F. H.—AA
Salisbury, H. M.—TWA
Saltanis, P. J.—EAL
Sanborn, R. B.—EAL
Sandblom, J. V.—CP
Sandgren, T. E.—UAL
Sands, R. E.—UAL
Sauceda, J. M.—PAA
Schember, R. C.—UAL
Schwartzbach, M. D.—WAL
Scott, P. C.—UAL
Scott, P. T. W.—TWA
Scroggins, L. V.—PCA
Shank, E. S.—NWA
Sharpnack, J. W.—UAL
Sheets, D. K.—Panagra
Shelton, G. E.—TWA
Sherwood, G. C.—WAL
Simmons, Julien B.—EAL
Smith, G. E.—TWA
Smoot, C. H.—Braniff
Snowden, J. P.—TWA
Sprado, George—WAL
Stark, Horace—PCA
Stehle, W. C.—AA
Stickel, J. J.—NWA
Stiller, H. A.—AA
Stoner, S. E.—AA
Stroud, J. E.—AA
Stultz, H. L.—TWA
Sumrall, M. B.—PAA
Supple, R. E.—Panagra
Swallow, E. K.—UAL
Swander, L. D.—NAL
Tarrant, H. R.—UAL
Taylor, V. W.—NWA
Terletzky, Leo—PAA
Thomas, L. E.—EAL
Thompson, A. R.—UAL
Toler, P. K.—MCA
Tower, H. G.—UAL
Turbyne, Robert—Panagra
Underwood, S. L.—AA
Vance, C. K.—UAL
VanCleef, J. G.—NWA
Vanderbusch, R. E.—NWA
Venderley, P. W.—AA
Wagar, G. K.—UAL
Waldron, Joe—AA
Walker, M. A.—PAA
Wallace, C. W.—TWA
Wallace, E. G.—PAA
Warner, George—UAL
Wasil, N. A.—TWA
Watkins, E. C.—AA
Weatherdon, Edwin—AA
Webb, Walton B.—TWA
Weber, R. J.—WAL
Weeks, R. E.—TWA
West, F. W.—NWA
Westerfield, W. R.—AOA
Whidden, R. G.—NEA
Wieselmayer, Otto—PAA
Williams, W. C.—TWA
Williamson, P. B.—EAL
Willingham, K. V.—EAL
Wilson, W. C.—AA
Winkler, F. X.—TWA
Witt, Porter—NWA
Wolf, J. F.—WAE
Wolfe, Verne F.—NWA
Worthen, J. A.—WW
Wright, J. S.—TWA
Young, G. E.—UAL
Zeier, C. F.—C&S
Zundel, W. R.—AA

Active—Natural

Andrews, Clyde M.—NAL
Bedell, Charles W.—PAA
Blomgren, L. L.—AA
Boyer, C. M., Jr.—PAA
Briggs, Edwin—CAP
Carl, A. C.—PCA
Chiappino, L. J.—TWA
Cochran, R. M.—UAL
Colton, Ray—UAL
Couch, L. H., Jr.—PAA
Creekmore, R. N.—PCA
Currier, C. L.—TWA
Dunn, G. B.—NWA
Durrance, J. C.—EAL
Fife, J. A.—CA
Flinn, Elroy J.—PAA
Fogleman, A. V.—CAP
Gambee, H. T.—TWA
Griffin, L. B.—Panagra
Harris, D. T.—AA
Hedenquist, W. A.—TWA
Helm, Thomas O.—C&S
Hohag, R. J.—NWA
Hubbard, D. L.—NWA
Jamieson, L. S.—EAL
Jaster, F. B.—EAL
Jenkins, J. G.—AA
Johannpeter, J. W.—AA
Johnson, H. A.—TWA
Johnson, P. E.—UAL
Kaufman, R. A.—AA
Keadle, F. E.—Varney
Kite, Don N.—AA
Leist, G. D.—PCA
Maguire, R.C.—AA
McClemens, K. J.—NEA
McConaughey, I. M.—AA
McCracken, H. Wayne—AA
Parker, A. N.—TWA
Peck, R. E.—NAL
Peterson, J. M.—NWA
Phelps, H. T.—PAA
Pricer, J. S.—AA
Rhoades, G. I.—PAA
Shepard, E. W.—PAA
Steup, W. A.—CAP
Swanson, Axel—AA
Tuntland, P. E.—WAL
Wagner, M. J.—PCA
Waidner, Claude F.—EAL
Wallace, J. L.—UAL
Winston, W. A.—PAA
Wittenberg, F. E.—UAL
Wynne, H. F.—WAL

Inactive

Allen, J. A.
Anderson, W. D.
Ashford, Ted
Austin, Amos A.
Barr, Julius
Beindorf, C. R.
Bowhan, Francis D
Bowne, F. S.
Bowie, Arthur J.
Brill, G. W.
Brown, W. C.
Burford, D. W.
Caldwell, G. Q.
Campbell, M. H.
Cushing, G. R.
Doty, D. E.
Downs, Lloyd
Drayton, C. M.
Dunn, S. M.
Erickson, F. M.
Evans, R. F.
Filor, J. R.
Fisher, A. U. F.
Gilberi, P. L.
Griebel, G. S.
Grund, W. F.
Harlow, L. R.
Hart, Jesse E.
Hays, G. L.
Hines, K. F.
Holland, Glenn A.
Hulsman, H. W.
Hunter, L. W.
Jackson, L. A.
Jacob, S. T.
Jennings, Spencer
Jewell, Robert H.
Judy, H. R.
Kerwin, J. J.
Knight, J. H.
Kraft, H. G.
Latz, W. G.
Leak, E. L.
Little, R. J.
Lorber, C. A.
Lowe, E. L.
Maas, E. A.
McConnell, W. M.
McMakin, R. A.
Minor, R. T.
Mitchell, R. L.
Moser, J. M.
Murphy, J. W.
Nicholson, Raymond F.
Northrop, Cecil P.
Noyes, D. L.
Ormsbee, F. E.
Palmer, D. G.
Rhiner, L. H.
Riddle, G. L.
Rose, J. A.
Rosenberger, W. S.
Roulstone, J. J.
Rousch, U. E.
Schmitz, George
Shelton, B. M.
Solomon, W. H.
Splittstoesser, E. A.
Squire, J. P. L.
Stark, H. C.
Steen, J. L.
Sterling, C. M.
Straith, W. P. A.
Thompson, C. A.
Tinkle, H. A.
Van Alstyne, Hugh, Jr.
Vaughan, M. G.
Veblen, E. H.
Walbridge, D. C.
Warner, Rov
Welsh, S. D.
Wheaton, H. H.
Whittemore, F. W.
Willey, S. L.
Wixon, Jack
Worthington, H. C.

Honorary

Brisbane, Arthur
Greene, Dr. Ralph
Hearst, Wm. Randolph
Kelly, Hon. Clyde
LaGuardia, Fiorello H.
Rogers, Will.
Wright, Orville

ALPA Employees in Line of Duty

Munch, F. O.